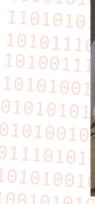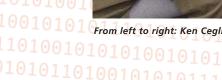**Randy Chitwood**
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The Birth of System 1™

System 1™ began its life in my office in 1998. I was discussing the perils of software engineering with my newly appointed Software Engineering Manager, Bob Spriggs. At the time, we were wrestling with our newest software product, Data Manager® 2000 (DM2000). I can't remember the specific issues we were dealing with; it could have been a DDE interface problem, or remote access security, or trying to test to the latest version of Windows NT®. As these discussions often go, we were soon counting our software engineers and working on our resource plan. "Lets see, ADRE®, 3500 Software, and Trendmaster® 2000 are all in pretty good shape. Should we reassign some engineers to the DM2000 team?"

From left to right: Ken Ceglia, Randy Chitwood, and Bob Spriggs.

"Our customers know that the assets in a modern industrial facility are not limited to rotating machinery. That's why we've designed System 1 to do more than just machinery management."

Ken Ceglia, a Software Principal Engineer working on the DM2000 product, interrupted us. Ken wanted to ask some questions about a specific job, but before he got to his, I got to mine. "Ken, you know as well as I do that many of our software products do the same things.

They need to be configured, gather data, store data, display data, communicate with other systems, and be linked to our knowledge systems like Machine Condition Manager™ 2000. Why can't we just have one product that does it all?"

"Users adopting the System 1 platform today will enjoy state-of-the-art functionality in many ways."

"You're talking about the 'big bang' project," Ken answered.

"Yeah, I guess, but why don't we just do it?"

"Well, the software world is littered with the bodies of engineers who started on big bangs and didn't pull them off. We have all heard the stories: years late, millions over budget – the project gets canceled," Bob Spriggs said ruefully.

Ken was still there. "My brother worked on a big bang project a few years ago. It almost made him give up software design. But, you know, the technology has advanced a lot lately and we have a real good team, both here and in India … maybe we could pull it off."

Bob countered, "Yes, but remember it takes more than just a design that works with our hardware and measures vibration. Systems today have to seamlessly integrate, talk to other systems, and support a wide variety of users."

"In other words," I said, "a modern software product must work well with a variety of other products. We all understand why Microsoft® Office has been so successful."

Ken wasn't really listening. I could tell he was already hatching a plan for how we could build our own big bang. It didn't even have a name back then – it was just known as our "Vision" software.

As I look back on that impromptu meeting from over three years ago, I think we were half-right and half-wrong. System 1™ is a big bang. It has required much more effort than any single software product ever developed at Bently Nevada. While we really haven't littered our halls with the bodies of software engineers, we've had plenty of working weekends and long days. The newest technologies at our disposal really have helped us to make a product significantly more capable than previous efforts, but carried with it an unplanned increase in design complexity.

All this hard work came to fruition with the release of version 1.0 of System 1 in June 2000. That release, however, is only the beginning of the story. I like to compare it to the release of Microsoft® Windows 1.0. Does anybody remember that? I know I don't – but what Microsoft® did is very similar to what Bently Nevada is doing with System 1. Windows 1.0 was the launch of a new operating system platform and System 1 version 1.0 was the beginning of a new machinery/asset condition management platform. Version 1.0 of System 1 only supported our new portable data collector, Snapshot™ for Windows® CE. There's nothing remarkable about that; every portable data collector vendor offers a

software package. What does set System 1 apart from its competition is what it will do in the future, beginning with the release of version 2.0 highlighted in this issue of ORBIT. Once again, I make the comparison to Microsoft – this time, to the release of Windows 3.0. Although it wasn't perfect, I began to use it on my desktop because it allowed some simple multi-tasking and, of course, we all remember Windows 3.1. That was the product that made Windows a household word.

In a similar fashion, I believe our customers will also begin to take increased notice of System 1™ with version 2.0. This release makes System 1 the only software package that can successfully integrate periodic data from portable devices with high-speed, online data from the most critical plant assets. Like Windows multi-tasking, the concept is simple, while the reality of implementing the solution is very complex. Assimilating periodic machinery data gathered only once a day or once a month with data streaming in at rates in excess of 10 megabytes a second is indeed very challenging. We've met that challenge with System 1™.

"The depth of asset data that is contained in the System 1 configuration application will surprise most users. We are extremely proud of the System 1 architecture."

Users adopting the System 1 platform today will enjoy state-of-the-art functionality in many ways. We have a highly flexible database based on the Microsoft® SQL server, excellent data importing and exporting capabilities, true client/server architecture, real time and historical data presentation, enhancements to the popular Bently Nevada plotting capabilities, and a graphical user interface supporting multiple views of customers' plants and assets. Assets can be viewed in several different ways using a traditional hierarchical view (Windows Explorer Tree), enterprise (physical) view, and views of the plant instrumentation. There are

numerous other features that are designed to help the System 1 user. For instance, the depth of asset data that is contained in the System 1 configuration application will surprise most users. We are extremely proud of the System 1 architecture. Our development team found innovative solutions to many real-world problems associated with the current generation of condition monitoring programs. Some of those solutions are so powerful we are in the process of patenting them.

What does the future hold? Today, the focus of many of our customers is on the total management of their production assets. Our customers know that the assets in a modern industrial facility are not limited to rotating machinery. That's why we've designed System 1 to do more than just machinery management. Innovative features, Decision Support℠, interoperability with our own and other software products – these all make System 1 the tool of choice for effective asset condition management.

As Ken Ceglia stated in our meeting in 1998, "If we take everything we've learned from our customers – the good, the bad, and the ugly – and combine that with the latest software technology and our experienced team, this will be the killer application for condition monitoring on all plant assets – not just machinery. Everyone will be using it."

I think we have succeeded. Once you, our readers and customers, get a chance to see and understand System 1™ better, I am sure you will agree. ORBIT